



### Conclusion:

Choosing to build green on brownfields makes sense for a number of reasons, including:

- Reduced operating expenses with comparable design and construction costs;
- Better indoor air quality for a more healthy building;
- Better occupant comfort and worker productivity;
- For not-for-profit organizations, building green may open opportunities for design and construction funding that would not be available otherwise; and
- The symbolic value of leaving behind a legacy of contamination for a more sustainable future.

Although EPA is not planning additional Green Building on Brownfields pilots, the lessons learned from these projects can provide models for other communities interested in pursuing a green building project. For more details on each pilot project, see the individual Green Building on Brownfields pilot factsheets, available on EPA's Brownfields Program website, [www.epa.gov/brownfields](http://www.epa.gov/brownfields). Those interested in learning more about green buildings are encouraged to visit the web sites listed below.

### Additional Resources:

The following web sites provide information about green buildings and brownfields that may be useful.

Energy Star

<http://www.energystar.gov/>

The U.S. Green Building Council\*

<http://www.usgbc.org>

GreenerBuildings.com, a partnership between GreenBiz.com and the U.S. Green Building Council\*

<http://www.greenerbuildings.com/>

The Whole Building Design Guide\*

<http://www.wbdg.org/>

U.S. EPA's Green Buildings web site

<http://www.epa.gov/greenbuilding/>

U.S. EPA's Office of Brownfields Cleanup and Redevelopment

<http://www.epa.gov/brownfields/index.html>

\*EPA cannot attest to the accuracy of information provided by this Web site. Providing non-EPA Web sites does not constitute an endorsement by EPA or any of its employees of the sponsors of the sites or the information or products presented on the site.



# Many Reasons to Build Green on Brownfields

## Lessons Learned from the Green Buildings on Brownfields Pilot Initiative

U.S. Environmental Protection Agency's (EPA's) Brownfields Program is designed to empower states, tribes, communities, and other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely clean up, and sustainably reuse brownfields. A brownfield is real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.

In 2002, EPA provided eight applicants with expert services to support the development of green buildings on brownfields, in conjunction with brownfields assessment and cleanup. These professional services included architecture, engineering, planning, and community outreach activities. This effort, EPA's Green Buildings on Brownfields Pilot Initiative, responded to the needs and interests of many brownfields communities who wanted to "green" their approach to brownfields redevelopment. Building environmentally-friendly buildings on what was once contaminated (or perceived to be contaminated) land can be symbolic of a new, environmentally-sound direction for communities, as well as tangible growth for their economies.

This fact sheet summarizes some of the key lessons learned from the Green Buildings on Brownfields Pilot Initiative. Though each project was unique in some ways, they also encountered many similar benefits and challenges in their efforts to develop green buildings on brownfields. This factsheet is intended as a resource for stakeholders interested in developing green buildings on brownfields, although many of the lessons learned are more broadly applicable for those who seek to develop green buildings on sites without contamination concerns. Additional resources are listed at the end.

**Green or sustainable building is the practice of creating healthier and more resource-efficient models of construction, renovation, operation, maintenance, and demolition.**

### Green Buildings on Brownfields Initiative: Pilot Projects

- ◆ Community Center Building, Springfield, Massachusetts (EPA Region 1)
- ◆ The National Aquarium in Baltimore's Center for Aquatic Life and Conservation, Baltimore, Maryland (EPA Region 3)
- ◆ ReGenesis Medical Center, Spartanburg, South Carolina (EPA Region 4)
- ◆ Marina District Redevelopment, Toledo, Ohio (EPA Region 5)
- ◆ World Headquarters for Heifer International, Little Rock, Arkansas (EPA Region 6)
- ◆ Trailnet Inc., Trailhead Building, St. Louis, Missouri (EPA Region 7)
- ◆ Community Culture and Commercial Center, Kauai, Hawaii (EPA Region 9)
- ◆ Volcanic Legacy Discovery Center, Mt. Shasta, California (EPA Region 9)



(Continue)

# Five Lessons Learned for Building Green on Brownfields

## Lesson 1: Green Buildings Can Leverage Green Money

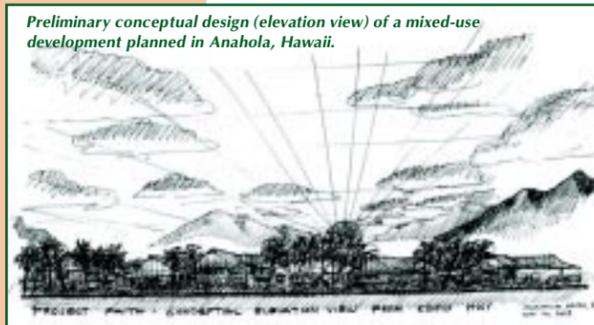
Five of the pilots involved green buildings for not-for-profit organizations. Though their reasons for choosing to develop green buildings varied, each of these not-for-profit organizations spoke of the fund raising advantage their decision to go green provided. For example, in Springfield, Massachusetts, the New North Citizens' Council was able to bolster its application for funding from Home Depot, the Massachusetts Renewable Energy Trust, and other foundations in large part due to its decision to pursue a green building. Other pilots reported similar advantages.



The financial benefits for not-for-profit organizations also extends beyond the design and construction phase. As one architect supporting a pilot pointed out, the funding challenge for not-for-profit organizations does not end with the grand opening of a new building. By choosing to go green, not-for-profit organizations benefit from reduced operating costs over the lifetime of the building through reduced energy and water expenses.

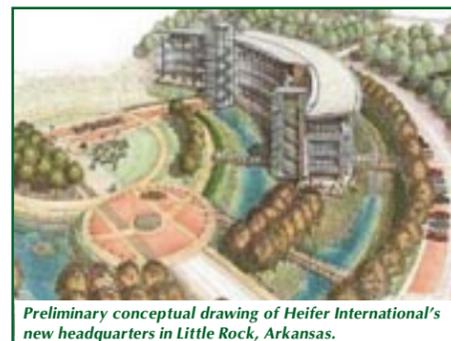
## Lesson 2: Symbolism Can Be Powerful

Though financial considerations played a key role in the decision of some pilots to go green, others were motivated more by a desire to distance their community from a legacy of contamination. In Spartanburg, South Carolina, residents were attracted to the concept of a "healthy" building to move beyond past problems with contamination. In Anahola, Hawaii, residents were motivated to "do the right thing" in part from native Hawaiian culture which views the land as "borrowed" from future generations. In both cases, the communities were energized by the vision of a more healthy and sustainable future through a green building.



## Lesson 3: "Visuals" Help Build Visions

Many people have never heard of a "green" building. This may lead to misconceptions when the prospect of a green building is first presented. For most of the pilots, it was necessary to educate decision makers and other key stakeholders about the basics of green buildings. Many people first assume that green buildings must be significantly more expensive than conventional buildings. In fact, the average green building has been found to cost only two percent more than conventional buildings according to one study.<sup>1</sup> Moreover, any increase in cost is often quickly recovered through energy savings. Others may wonder if green buildings are as comfortable as conventional buildings; in fact, occupant comfort and worker productivity is a selling point for green buildings that emphasize improved indoor environmental conditions.



(continued)

## Lesson 4: Establish Clear Green Goals Early

Green buildings can usually be built at costs similar to conventional buildings. However, one of the ways that the cost of a green building can rise unnecessarily is through excessive design expenses. If architects and engineers do not have a clear understanding of the green goals of the building from the outset, they may revert to conventional design techniques. The resulting iteration of designs between client and designer then increases the cost of the project. It is much more cost-effective to design green features in from the beginning, in an integrated fashion, than to try to tack them on at the end.



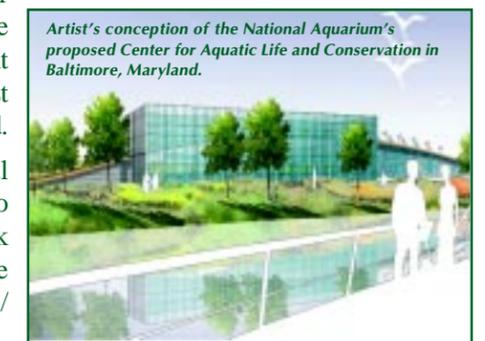
Two of the pilots sought to address this issue by convening key decision makers and technical experts to develop pre-design documents that detail the green performance goals of the building and, in some cases, the technologies to be used. These pilots plan to incorporate text from these pre-design documents into their requests for proposals from, and contracts with, architects and engineers.

## Lesson 5: Finding the Right Expertise Can Be a Challenge

Most major cities have a number of architects and engineers with expertise in green building design. The U.S. Green Building Council maintains a data base of Leadership in Energy and Environmental Design (LEED) certified professionals on their web site to assist in locating green building experts. However there are still relatively few green building professionals in many mid-sized cities and small towns.

Two of the pilots were in such locations, and chose to meet this challenge by working with local architects and engineers eager to learn more about green building design. By doing so, they were helping build local expertise for future green buildings. Ultimately, the decision to work with a local architect or engineer that is still climbing the learning curve or a green building expert at a more distant location will depend upon the specifics of cost and the level of specialized expertise required.

<sup>1</sup>Kats, Greg. "The Costs and Financial Benefits of Green Buildings: A Report to California's Sustainable Building Task Force." October, 2003. Available online at: <http://www.usgbc.org/Docs/News/News477.pdf>



(continued)